Conference Paper

Axiology and Praxeology of Design Thinking

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Abstract

This article discusses the methodological and axiological foundations of design, the determinants of design, objective and subjective aspects of design, and designer's value guidelines. Since the earliest stages of its history, design as a type of creative practice existed and developed an integral connection with mass production. Unlike architecture or visual, decorative and applied arts, design forms a part of economic production and communicative processes, and also influences economic, marketing, political and ecological situations. This article demonstrates the evolution of systemic and environmental approaches to design, the transition from methodological, functional and morphological techniques for solving of problems within individual concepts of design to axiological, philosophical and ecological approaches. Design is characterized by the following features: an interdisciplinary approach; team work; empathy; the need for prototyping and testing of the object; and inclusion in sociocultural processes. The design object is analysed in terms of its value to the consumer.

Keywords: culture, value, design, methodology of design, design thinking, empathy, consumer

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1. Introduction

Design is an aesthetic morphogenetic activity that produces material and object environment and visual communications by using production technologies. Unlike architecture, visual, decorative and applied arts, design forms a part of economic, production and communicative processes, influences economy, marketing, politics and environmental conditions. [1] Design as a type of projecting and creative practice appeared simultaneously with the beginning of mass production. Its projecting function is based on the need to solve a problem, to open new opportunities to organize people's everyday life and to satisfy their needs. Designers build upon the experience of classical arts using tools and methods of compositional arrangement – however, they also develop their own visual language and forms of communicative practice, their own methods and tools.

Initially designers did not preserve cultural forms but rather searched, discovered, created and distributed the new ones. Design is a catalyst of social and technological innovation. The objects of design reflect technological achievements, contemporary

trends in various areas, consumer tastes and demands. The objects of design should be ahead of time, should comply with economic demands and the requirements of social institutions, should satisfy fashionable trends.

Design is an integrative and systemic phenomenon that links together non-material and material culture with the system of values, professional requirements and projecting principles; it is, simultaneously, a professional activity and an area of production whose results are artefacts, i.e. design objects. The object of designing process should "improve" the world facilitating progress and providing for the future. "Design is simultaneously a cultural product, an instrument of cultural construction, and a factor that actively influences culture," writes A.N.Lavrentyev. [2]

2. Materials and Methods

Culture may be understood as the materialized actualized ideas for the creation of universal human material and non-material values. The processes of materialization (creating material values and visual systems) and de-materialization (consumption of created objects, transformation of reality) unfold in dialectical unity. These processes correlate with the society's potential and level of development. Designers create new fashionable trends and aesthetical guidelines; they influence people's taste, facilitate the next stage of consumption (often conspicuous), shape value-orientations and worldview markers in society, influence people behaviour. Today design is a global international phenomenon that permeates our everyday life. This increases the importance of designer's professional ethics and understanding of values.

The purpose of this paper is to reveal cultural paradigms and determinants of modern designing process, the correlation between designer's practical capabilities and value orientations, between design praxeology and axiology. Here the main research methods include cultural, art-historian and historical analysis. Theoretically this research is based on the articles and books by art historians, cultural researchers, philosophers, design theorists and practitioners about design problems and trends.

3. Discussion

3.1. Thinking as a designer

Designer's work is radically different from the artist's work. Art is ageless, it is beautiful, it is born out of inspiration, it preserves reality as memory, reveals the secret, the sensual,

the subjective, the irrational. Art does not depend on commercial success (despite the occasional happy meeting between an artist and a patron). Design exists in the here and now, it satisfies needs, forecasts the future, it is objective and rational. It is an applied profession: a designer necessarily depends on the customers, on the consumers, on the production process, on business, marketing and fashion.

Design combines objective and subjective approach. This is what distances it from the classical science that aims for objectivity and elimination of everything subjective, as a key to the validity of knowledge. Design as a rational activity requires logical justification, use of scientific methods, it builds upon extensive theoretical and empirical research and systemic approach. A project always starts with the analysis of needs, limitations, conditions and opportunities. Design thinking aims to solve a problem or a contradiction. A designer determines project goal and tasks, stages, means and methods, comparing and analysing different concepts. Design includes technologies for project development and creativity. Design object cannot exist outside concrete temporal and environmental situation, outside of author's opinion or consumer demand; it must form an integral part of the historical context, of the existing visual language; it has to correspond with the target audience's expectations.

Designing process is a visualization of the unity between axiology and praxeology. The designer has to solve the issues of function (goal), construction (reliability), ergonomics (comfort), aesthetics (composition, form and colour), economy (practicability and rationality), ecology (energy and resource requirements, longevity, utilization) and, most importantly, social demand, usefulness and consumer value.

The designer's goal is always to achieve correlation between an object's form and its meaning; therefore, the process of form-generation is intrinsically connected to the production of meaning. An object's meaning is expressed in the ways and forms of its socio-cultural being. When determining the objects' external characteristics (shape, colour, materials, texture), it is necessary to establish a hierarchy of qualities: ergonomics, functionality, structure, technology, longevity, sustainability, artistic value, symbolic value.

Design methodology includes the following components: stages, algorithms, strategy and tactics of designing research and process; principles and techniques of thinking; normative rules; methods of designing (functional analysis, scene modelling, participation, customisation, empathy, scientific methods, creative thinking, sociological research, etc.); form generation (modelling, stylization, analogy, coordination, proportion, rhythmicity, etc.)

Methodological foundations of design can be divided in three levels. The first one is philosophical: it shapes basics of world-view and principles and criteria of the designing

process. The second one includes scientific knowledge and methods: mathematics, physics, chemistry, biology. The third level is formed by practical knowledge and methods of concrete activities and theories: history of technology, theory of architecture, theory of machines and mechanisms, ergonomics, hygiene, material science etc.

To anticipate future in design, we need creativity, experiment, innovation, imagination, irrationality, intuition, forecast, practicality and critical approach. Since the designing process, essentially, shapes human life, it is always centred at the consumer – therefore, scene modelling and empathy are the key designing methods. The most important quality both of design process and design object is its communicative ability. In 1957 George Nelson wrote that design of any object is a form of social communication, and the most important quality of each object is the authenticity of its essence. [3] Anthropocentrism and ecocentrism should harmoniously co-exist as the foundations of the designers' world-view.

The basics of design thinking technology have been already formulated and applied in education and in design process by W.Gropius, J Itten, L. Moholy-Nagy, P. Klee, V.Kandinsky, O.Schlemmer and other Bauhaus instructors (Germany, 1919–1933). These are the principles of human-oriented design, interdisciplinary approach, teamwork, prototyping and testing, design inclusion in sociocultural processes. The development of design thinking was one of the central tasks of the educational process. Even after the 100 years, the methodological heritage of this unique school remains relevant and is continuously being rethought and developed.

In 1969 Herbert Simon in his book *The Sciences of the Artificial* proposed the concept of design thinking and formulated its main characteristics. [4] Today this universal technique as an efficient tool for solving various tasks is actively utilized in different spheres, even those far removed from design itself: business, education, medicine and industry. Since 1990s, its main research, innovative and experimental venue is based in Stanford University (USA).

Tim Brown, CEO of the IDEO consulting company, defines design thinking as a non-linear thinking technique, as a "human-centred approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success." [5]. Tim Brown notes that for companies design plays a strategic role; evolution from the design to the design thinking is a road from object production to the analysis of relations between humans and things, between individuals and society.

Design thinking is a "human-oriented approach to innovations inspired by the designer principles to combine human needs, technological capabilities and business

success tools" [6]. Design thinking is both a tool and a way of seeing the world in a way that allows us to pinpoint challenges and reshape and organize our environment. It is a projecting technique based on methods and tools of design. It differs from analytical thinking and standard rational solutions in its anthropocentricity, empathy, integrative quality, interdisciplinarity, visualisation of each step and collective organization of work. A projecting culture includes methodology, goal-orientedness and value images of the material and spatial environment, as well as creative concepts, value orientations and norms of professional ethics.

3.2. Axiology of design

A designer finds compromise between the customer demands and the consumer needs, between demands of production, business and economy, as well as marketing and advertising tasks, while trying to develop his/her creative potential, earning an income and following the norms of professional ethics. What is a value in design for the designer, for the consumer and for the customer? The value of design object includes its usefulness and importance for the satisfaction of consumer's needs in everyday life, as well as its consumer and exchange value. An object's value can be objective and subjective. An object as product has not only value but also a price.

Axiology distinguishes between material and non-material values. Universal human values are: life, health, family, well-being of the loved ones, freedom and independence, social status, self-realization through work and creativity, education and personal development, material well-being, stability. Each individual and each community has their own hierarchy of values.

Chinese philosopher Laozi (b. in 604 B.C.), one of the founders of Taoism, wrote:

> Thirty spokes converge at the hub: Where there is nothing There lies what makes the cart useful. Mix clay to make a vessel: Where there is nothing There lies what makes the vessel useful. Chisel doors and windows to make a house: Where there is nothing There lies what makes the house useful. Thus things bring benefits; Nothingness brings usefulness. [7]

Ancient philosophy began to distinguish between "value" and "price"; the good was defined as a realized value (usefulness), and the fullness of being was considered an absolute human value. [8]

In philosophy value is understood as a socio-cultural meaning of objects and phenomena, which refers to the sphere of what should be, to the goal and meaning. Value

as an absolute establishes one of the possible achievable goals of human sociocultural activity: beyond concrete personality and beyond historical moment. Values connect the past, the present and the future, provide objective and spatial environment with its semantics and axiological meaning, establish priorities systems, criteria and ways of social acceptance and assessment. [9] Sociologists define value as a certain type of social relation that transfers the needs and interests of an individual or a social group to the world of objects, things and spiritual phenomena, imbuing them with social meaning. [10]

Design's material dimension (shape of an object, its function, use, ergonomics, morphology, appearance) is subjected to the goals of the mind. The goal of object creation is a creation of meaning, a solution to social, ethical, psychological, environmental issues, a satisfaction not only of consumer needs but also of aesthetic needs.

In early 20th century the first theorists of design (H.Reed, J. Gloag, J. Nelson, T.Maldonado) defined design as a systematic activity used for humanistic purposes of harmonization of technological work and humanisation of technology. Many authors talked not of the development of forms and objects, but of the new way of life, thus understanding design educational and ideological role, its cultural and humanistic purpose and the designer's social responsibility.

Dieter Rams (b.1932), the Braun's leading designer from 1962 to 1995, believes that a good design should be innovative, it should make a product useful, aesthetic, understandable; good design is unobtrusive, honest and long-lasting, thought through to the last detail, ecologically friendly. Rams's main theses is: good design is as little design as possible. [11] What is more important is not an object but a living space for human beings, the realization of their needs and creative ideas. Design is not just a creation of material objects of various shapes and sizes – according to the American designer and anthropologist Viktor Papanek, it is "conscious and intuitive efforts to establish a meaningful order" [12, p.219].

Evolution of ideas in design process leads to the development of systemic and environmental approaches and a shift from methodological, functional and morphological solutions within individual design concepts to the axiological, holistic and ecological approaches:

1. late 19th century – birth of the design: introduction of aesthetic demands into the production process, search for systemic and morphological factors in design process;

2. 1920s – radical functionalism of Bauhaus: form follows function, rationality, standardization, unification;
3. 1930s – commercialization (commercial design in the USA): aesthetic qualities as a sales-rising tool, design as a form of mass culture, design as part of production and consumption processes; styling; foundations of postmodern playful approach to design;
4. 1930s–1960s – aesthetic functionalism: function through form, laconism, precision;
5. 1950s – systemic approach: different factors of design process as part of a whole, systems of criteria applied to an object, design object as a system and as a part of systems of material objects and environment;
6. 1960s–1970s – design as art: attention to artistic and visual components, as well as emotional impact on consumers;
7. 1970s–1980s – environmental approach: we design not a single object but a sociocultural space; attention to environmental context;
8. 1970s – ecological approach: sustainable satisfaction of human needs, harmonization of human–nature relationship, ecologically responsible design. [1]

The 21st century has been called a century of "iPhone design". An object should perform as many functions as possible; it should be universal, very simple to use; it should adopt to the users' needs and individual traits; at the same time, an object should be small: disappearing from view, it frees up a space for life. Designers develop objects of mass consumption: cars, gadgets, household items. The competition between the producers of objects with similar specifications is based on design: an effective image, a complete set of functions, a comfort of use, as well as the promotion using tools of graphic and web design. Design adds value to the product's price, it becomes a reason to choose a concrete product, it motivates and stimulates the consumer. Since 1930s (commercial design) and since the development of consumer society in 1960s, an object's novelty, style, aesthetic quality and image became more important than its reliability, functionality, longevity and cost-effectiveness. Often objects are bought not to satisfy a need, but to answer a mood, to fulfil an ambition, to demonstrate a lifestyle or to create an image.

Already in late 19-hundreds, American economist and sociologist Thorstein Weblen wrote that among the range of objects with the same functions and specifications the consumer chooses those that would showcase his/her reputation and correspond with

the dream of better life. He determined an importance of economic actor's subjective goals for the analysis of economy and showed that in market economy consumers are subject to various social and psychological pressures that induce them to choose a corporate-determined solution. Weblen introduced into economic theory the term "conspicuous consumption", also called "Weblen's effect/paradox". People are repelled by cheap goods, even if they are more functional, since consumption and even look of such objects is inevitably perceived as a loathed indicator of lower social status, and their image leaves a deep feeling of squalor and oppression. [13]

Materiality of a design object determines its morphology, its material structure, its shape organized based on the object's functions, material and method of production. As a consumer item, design object represents something good, it has consumer value and possesses a set of value-laden indicators. Social value aspect characterises the object's use, comfort and beauty: characteristics that cannot be determined by scientific methods or through simple sensory input. An object's value aspect characterises its axiology (from Greek "axia" – value).

An object is a sum total of its meanings. Meaning creation is a process that produces meanings, i.e. an object's axiological field. An object's meanings reflect its practical purpose, its constructive and technological viability, its human adaptation. An object becomes a part of culture which created it, since it is an expression and development of this culture. Project concept is a development of preceding cultural experience, including the designer's individual experience connected to a concrete culture. Often an object resists all attempts to transfer it from one cultural environment to another – especially when such object represents a regional model, tradition or style.

Object morphology is inextricably tied to its value characteristics, while value cannot exist without object and material structure. In other words, morphology is axiological, and axiology is morphological; an object's form is useful, and usefulness has material expression.

4. Conclusions

Design process, first and foremost, answers not the question "how?" but "for whom?" and "what for?" Apart from function, structure and form (in T.Maldonado's definition), design object's essential qualities are meaning, novelty and value of such object for individuals and for society in general. Designing process should proceed not from an object's shape but from a problem or contradiction; this is where the goal, concept and task should be formulated. The designer's worldview should be shaped by professional

ethics, responsibility, behavioural models and values that should be demonstrated and encouraged in the consumers.

In their requirements for potential employees, employers often list not only “material” qualities, such as professional skills in various spheres, work experience, good portfolio, computer skills. Even more important for the employers are personal values: good teamworking, communicability, stress resistance, empathy, ability to perform to tight deadlines, responsibility, attention, initiative.

Design methodology and language of object shapes accumulate experience of different cultures. Designer’s mission, as a representative of creative profession, is to change the world and make people happier. It is important to note that in design the prestigious award-winning projects are often creative but low-budget projects aimed at less developed countries or people with special needs. Not an object’s price but its social value and potential to improve life for many people are the main criteria.

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